Virginia Ocean Plan
FY13 Task 95.01
Final Report, Grant Period October 1, 2013 to September 30, 2014
Grant# NA13NOS4190135
Compiled by Todd Janeski, VCU, Department of Life Sciences

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Executive Summary

The VCU Environmental Scientist/Analyst, as retained by the Virginia Department of Environmental Quality, Coastal Zone Management Program, served as the Ocean Planning Stakeholder Coordinator for the grant reporting period under the VACZM Section 309 Ocean Resources Strategy. During this period, the Stakeholder Coordinator worked with the Virginia CZM Program in the Commonwealth's Ocean Planning initiative. This effort included direct assistance to the VA CZM Manager for the purpose of facilitating the development and implementation of a Virginia Ocean Plan for the waters off Virginia's coast in concert with the Mid-Atlantic Regional Council on the Ocean (MARCO) as called for in the July 19, 2010 Final Recommendations of the Interagency Ocean Policy Task Force (IOPTF). Virginia's Ocean Plan will cover the area from mean low water along Virginia's Atlantic coast out to the 200 mile Exclusive Economic Zone.

Ocean planning in the Commonwealth includes a partnership MARCO that includes representatives from the States of New York, New Jersey, Delaware, Maryland and Virginia. The broader MARCO effort is being supported through several contractors such as Monmouth University, University of Delaware, Rutgers University, Nature Conservancy, and NatureServe. Primarily, ocean planning brings together the sectors of Ports and Navigation, Military, Commercial Fisheries, Recreational Users, Alternative and Traditional Energy, Conservation, Tourism, and Local Government. These sectors have been brought together both in the Commonwealth as well as in the region to share information regarding ocean uses for the purpose of understanding the complexity of overlapping and abutting uses. Additionally, the Stakeholder Coordinator participated in the implementation of the Mid-Atlantic Regional Planning Body, the federally lead effort to coordinate the Mid-Atlantic States, Federal Government, Recognized Tribes and the Marine Sectors. Specific focus of the VCU Stakeholder Engagement Coordinator was in the area of Offshore Commercial Fishing.

In addition, Virginia completed a Final Draft of the Virginia Marine Debris Reduction Plan. The goal is to present the Marine Debris Reduction Plan to the Virginia Coastal Policy Team for adoption and to MARCO for consideration. Decreasing marine debris is one of the goals within MARCO's set of "Water Quality" goals. A partnership between Longwood University Clean Virginia Waterways Program, VDEQ Community Involvement Specialist and VCU was employed to conduct a social science based data collection and analysis to develop the Final Draft.

Project Implementation

The VCU Ocean Stakeholder Outreach Coordinator and maintained an office on the VCU campus and directly supported the Virginia CZM Program Manager in many aspects of MARCO and the Ocean Planning activities in the Commonwealth. Significant focus was on the development of Virginia offshore marine stakeholders/users based upon the December, 2009 MARCO Stakeholder Workshop which was held in NYC and the initiation of the development of the Marine Debris

Reduction Plan (MDRP).

Ocean Planning

The VCU Ocean Stakeholder Outreach Coordinator worked with the CZM Director, the Accomack-Northampton Planning District Commission and the seafood industry to engage the commercial fishing industry to better understand those areas most used for commercial purposes. Building social capital is a key strategy to advance the commercial industry and a critical strategic partnership was established with the Virginia Seafood Council (VSC). The VSC provided project credibility and direct support to the VCU Outreach Coordinator to successfully engage a critical community stakeholder to advance ocean planning. The commercial fishing industry, an often overlooked and underrepresented constituent, is a keystone stakeholder for Virginia's coast by which establishing a credible relationship is vital to a successful outcome in coastal management. Outreach included the direct coordination and communication with the seafood industry wholesalers, processors and vessel operators. During the project reporting period, the VCU Analyst attended the December 12, 2013 Annapolis, MD Mid-Atlantic Fisheries Management Council Meeting (MAFMC) to present the MARCO Portal and begin the dialogue with the MAFMC on regional ocean planning. The intent was to be present while the Monmouth and TNC staff presented to the Council, however, neither Monmouth nor TNC staff showed and the agenda item was removed from the agenda during the meeting. Also, the VCU Analyst attended the Bureau of Ocean Energy Management (BOEM) and MAFMC joint meeting on Wind area citing in Baltimore on February 6, 2014 to discuss the potential seascape change that may affect the Atlantic coast. The VCU Analyst realized great potential to advance the development of Commercial fisheries contacts and context off the coast of Virginia.

A key difficulty in ecosystem based management is directly integrating human communities into the marine environment and management. These difficulties are largely a result of the lack of data specifying those areas at sea that are utilized by communities of resource users even as the marine environment is increasingly understood in spatial terms. Rutgers University developed an approach to link port communities to resource areas through an analysis of the Vessel Trip Reports (VTR) as submitted for each gear type referenced to a specific port of landing. While there are limitations and weaknesses to the VTR data, such as inaccuracies due to multi-day trips and multiple gear types deployed in the same 10minute quad resulting in missing activities, a credible interpretation of fishing can be represented to inform regional scale planning. The results are map products that reflect not the economic activities of fishing, but the fishing effort and displayed as a representation of 75% of that effort. These data factor in the number of crew on the vessel and number of days at sea during the activity. These data are grouped based on gear types that include: Groundfish, Dredge, Gillnet-Longline, and Pots and Traps. Of these groupings, the Groundfish includes: Otter trawl, bottom for fish, scallop and bottom pair trawls. The Dredge includes scallop and mussel dredge data. The Gillnet-longline includes sink, drift and runaround gillnets and bottom and pelagic longline. The Pots and Traps data include lobster, shrimp, crab, seabass, and spiny dogfish. These mapped fishing efforts are displayed both on a regional scale and on a port-based approach to delineate the effort to a specific geographic location. For Virginia, those ports of concern are Chincoteague, Hampton, Newport News and Virginia Beach. Rutgers University refers to these products as the Communities at Sea maps.

The VCU Coordinator worked closely with the Monmouth Project Team to develop an authentic approach to engage the commercial fishing industry in Virginia to serve as a model for the other MARCO states. Assisted in developing the structure, outline and an approach that would engage the commercial fishing community to vet the Communities at Sea products. The approach is to inform stakeholders of MARCO and the regional ocean planning efforts and to combine the Portal discussions with that of Ocean Planning off the coast of VA. The final approach of the editing and input provided to reach these constituents, as provided as a script, can be found in the Appendix.

Significant effort was dedicated to engage the commercial sector in a meaningful manner through an on-the-ground approach of direct engagement of commercial fishers. Through this direct, personal engagement process, the industries contacted including those from the spiny dogfish, red crab, conch, scallop, black seabass, menhaden and pelagic fisheries. The immediate purpose of the contact was to make arrangements and direct invitations to review the Community at Sea Maps at the public venue partnering with the VA Marine Resources Commission and the Finfish Management Advisory Council. On June 16, a subset of the Project Team, that included the VACZM, VCU and TNC presented to the VA Marine Resources Commission (VMRC) the overview of the Communities at Sea maps, the vetting process and directly requested assistance from the Commission. The outcome of the meeting resulted in the scheduling and execution of the July 15 meeting with the Finfish Management Advisory Committee (FMAC) and the commercial fishing industry to review the Communities at Sea Maps. This meeting included approximately 12-18 attendees were present representing scallop, spiny dogfish, conch, black sea bass and other fisheries. Given the limited attendance, the response was relatively positive with many of the attendees seeking information on the location of the proposed Virginia Wind Energy Area (WEA). An attendee from Virginia Beach indicated the maps for the pots and traps appear to be representative while others from the area indicated their appearance was accurate for the recent years but not representative of year prior to the displayed period. An attendee from the eastern shore indicated there were two issues – one, the filter of Chincoteague association may not be ideal and two, missing activity from fishermen who don't use VTR. Several attendees indicated a willingness to coordinate and schedule meetings with more representatives to vet the mapping products, stating timing at various points throughout the year would permit various gear sectors to view the maps. The Seafood Council indicated a strong willingness to work closely with the VCU Stakeholder Engagement Coordinator to reach the various sectors the direct communication to their membership or personal contact.

A strong relationship was established with a charter captain from Virginia Beach that assisted in providing many of the initial points of contact. As part of those conversations, the Captain indicated that the pelagic fisheries should be contacted to participate in the overall outreach strategy. During the Finfish Management Advisory Committee meeting, a request from attendees was to include those VTR data as relevant to the take of pelagic fisheries from charter activities; an outcome that is still uncertain from the Rutgers team.

The VCU Stakeholder Engagement Coordinator continued to work directly on the ground with representatives in the communities of Virginia Beach, Hampton and Newport News to continue the vetting process. Personal contact was made to validate the maps with representatives of the scallop industry, seabass, conch and spiny dogfish. Recognizing the changing landscape of transient fishers, the VCU Analyst worked with several processors and the Seafood Council to understand

the timing to best reach those that may be seasonally in port. Additionally, the VCU Analyst made direct contact with the menhaden industry to share details on MARCO, the Portal and discuss the Community at Sea maps and the lack of menhaden data. The industry, through assistance from the Seafood Council indicated a willingness to share such landings data with the caveat that they would be interpreted to minimize potential political fall-out from these data. The industry indicated that more than 60% of their landings are taken from offshore but all of their landings are brought back to one single port.

To facilitate the communication between the Virginia Coastal Zone Management Program, VCU, Accomack Northampton Planning District Commission and the Nature Conservancy, the VCU Stakeholder Engagement Coordinator developed a tracking database as indicated in the previous grant cycle. This database, shared through the VCU Google Docs site to the above mentioned parties, is intended to record those points of contact that were sought to vet the Community at Sea Maps, invitees to the various meetings such as the VMRC FMAC, inform about the MARCO ocean planning process and MARCO data portal. This tool will be used to reach similar constituents when expanding to include the offshore VA Wind Energy Area and identifying those commercial and recreational fishing interests that may be affected by changes in the seascape. That database can be located in the Appendix of this report.

The first meeting of the MARCO Stakeholders Liaison Committee (SLC) was held in Washington, DC on March 10, 2014 and initiated the process to understand how to best reach the constituents within each sector from the representatives on the SLC. Membership of the Stakeholder Liaison Committee include representatives from the Coastal Tourism, Commercial Fishing, Environmental Conservation, Marine Navigation, Marine Science, Marine Trades, Ocean Recreation, Offshore Alternative Energy, Ports, Recreational Fishing, and Submarine Cables. The SLC is to provide a sounding-board for how to reach the broader constituents in the region from Virginia to New York on ocean planning. The VCU Stakeholder Engagement Coordinator participated in various conference calls and internal meetings to develop communication strategies for this workgroup.

During the reporting period, the VCU Stakeholder Coordinator participating in the weekly MARCO Board meetings participated in the MARCO Water Quality Action Team, MARCO Ocean Planning Action Team (both the Portal and Stakeholder Engagement Subteams).

Marine Debris

The VCU Environmental Analyst provided direct assistance as a research team member with the DEQ Community Involvement Specialist assisting the Longwood University Clean Virginia Waterways Program Manager to advance the development of the Virginia Marine Debris Reduction Plan (MDRP).

A planning committee comprised of staff and representatives from the Virginia Commonwealth University (VCU), Virginia Aquarium and Marine Science Center, Clean Virginia Waterways/ Longwood University, Virginia Sea Grant, Virginia Institute of Marine Science (VIMS), and the Department of Environmental Quality (VA DEQ) Office of Public Communication and Outreach and Office of Pollution Prevention Program and the Virginia Coastal Zone Management Program (VACZM) developed the agenda, secured speakers and facilitators, and undertook all logistics.

During the reporting period, considerable time was spent developing, collecting and analyzing social science-based data to inform the development of the VA Marine Debris Reduction Plan. This research included the development and implementation of a Web-based survey and direct interviews with the "informed" litter and debris community in VA. The analysis of the Web-based survey consisted of considerable data analysis due to the high number of open-ended questions. Regular meetings between the DEQ Outreach Specialist, the Clean Virginia Waterways Program Manager and the VCU Environmental Analyst were held to ensure continued progress on the draft Plan. The social science approach included the development of a Web-based survey tool and direct interviews with those in the field that are involved, to some degree, in debris-related issues. The web-based was designed to obtain a broad understanding of the knowledge base for those in the field and to inform the detailed conversations and plan development. The web-survey included multiple-choice, ranked/rated and open ended questions. The direct interviews were conducted to provide a more detailed understanding of beliefs and perceptions associated with the marine debris topic. Both the Survey and the direct interview questions can be found in the Appendix of this report. An Advisory Committee was convened on February 7, and July 22, 2014 to discuss the outcome of the survey and guide the focusing of the results of the Survey to inform the Reduction Plan.

The Web-based survey was sent to move than 600 recipients representing Marine Debris Summit attendees, local Litter Prevention personnel, Clean Marina participants, state and local program administrators, nongovernmental organizations connected to litter prevention programs or initiatives, research and academics in the field of marine debris, waste management and recycling coordinators and companies, and community educators. More than 150 participants responded to the survey where questions sought responses to identify their role in addressing marine debris, to understand their knowledge and perceptions of marine debris and to gain their insight into the most important areas a management plan should focus.

Survey results were analyzed by the VCU Environmental Analyst, the DEQ Community Engagement Specialist and the Longwood University Clean Virginia Waterways Program Manager. Many of the questions were multiple choices with a following option to provide more details. These, being open ended, required considerable time coding responses to understand where the majority identified as the priorities. An example of the coding process can be found in the appendix. The appendix includes the final draft for Beta testing. This Beta version was sent to a subset of the leadership team to gain input on the survey design. The final version was formatted for Survey Monkey by Clean VA Waterways Program Manager and is displayed in the final Plan that was sent for review and input.

Following the survey, the VCU Analyst conducted face-to-face, personal interviews with representatives from the community to further understand the survey response and permit a more detailed discussion with field representatives. For this effort, interviews were conducted by the VCU Analyst with VA Department of Conservation and VA Department of Marine Resources personnel. The survey can be found in the Appendix. While this was included in the previous grant period, that grant included the development of the survey; this includes the execution and analysis of those responses. The top priorities identified in the survey to address where: fishing gear, plastic single use bags, beverage containers and food related litter, cigarette butts, microplastics, balloons and ship waste. The survey identified several "most achievable for Virginia" options separated into

land-based and ocean-based. These where:

Land-based marine debris items

A. Plastic bags
B. Cigarette butts and smoking-related litter
C. Balloons from mass releases
D. Beverage containers, straws, and food-related packaging
E. Waste from land-based industrial/manufacturing facilities
F. Uncovered trucks (includes municipal and commercial waste hauling vehicles)

Ocean-based marine debris items

A. Abandoned commercial fishing gear including crab pots
B. Waste from cargo, cruise, or other ocean-going commercial ships
C. Vessels: lost, abandoned or derelict

The Project Team of the VCU Analyst, VDEQ Community Engagement Specialist and the Longwood University Clean VA Waterways Program Manager coordinated and facilitated the Marine Debris Leadership Team to review the findings of the Web-based survey and the personal interviews. Survey and interview participants named several specific types of marine debris – including plastic bags, cigarette butts, beverage containers, food wrappers, and balloons – and suggested targeted ways to reduce these common sources of marine debris. This process also included a summary of the findings of the survey in a visual format to understand where on a quadrant-based view the priorities might reside, referred to as Bang-for-Buck charts. On each sheet was a chart with four equal sections. The x-axis represented costs or effort, starting with "low costs/low effort" and increasing to the right with "high costs/high effort." The y-axis represented impact, the lowest values representing "Low impact" and increasing toward the top with "High impact." The purpose was to identify politically, economically and socially feasible options. These broke into several priorities:

1. Plastic Bags
2. Reduction of Balloon waste
3. Increased coordination and collaboration AND Reduced smoking waste
4. New laws and regulations AND Reduced food/beverage litter AND Increased enforcement

Following the Leadership Team Meeting, the Project Team met regularly to continue the development of the Draft Marine Debris Management Plan including the development of the possible format for the plan. This included the development of the Goals and Strategies and the overall strategic process for the plan. The goals of the plan were identified as:

1. **Lead:** Virginia will pursue a collaborative and coordinated approach to reduce marine debris from land- and water-based sources, and will therefore establish long-term overarching results oriented Virginia Marine Debris Advisory Committee of partners.
2. **Prevent:** Reduce marine debris through source reduction, preventing trash from becoming litter and entering the water, and by preventing fishing gear from becoming lost or abandoned.
3. **Intercept:** Reduce marine debris by intercepting litter at storm drains. While intercepting litter can be considered a sub-set of prevention, it has unique challenges, as well as funding and research needs.

4. **Innovate:** Reduce marine debris through innovation of materials, designs, practices, equipment, technologies, and recovery.
5. **Remove and Clean Up:** Reduce marine debris by removing and cleaning up litter and debris items as well as mitigating the impacts and the damage marine debris causes.

Following the goals of the Marine Debris Reduction the Project Team identified the following Strategies:

1. **Changing behaviors –** People's behaviors and choices often lead to waste items becoming marine debris; therefore changing behaviors is a key strategy to this plan.
2. **Collaboration –** Many Virginians currently work on litter and marine debris prevention and removal projects; a coordinated and inclusive approach will promote more collaboration, efficiencies, and sharing of best practices.
3. **Increasing knowledge –** Many data gaps exist, and much research needs to be done to better understand sources, fates, impacts, and solutions to marine debris.
4. **Funding –** Implementing many of the elements in this plan will require significant funding to support research, coordination, behavior change campaign development, infrastructure improvements, and grants to local governments.
5. **Improved regulations and enforcement** – Regulations play key roles in pollution prevention and implementation of best practices. They can create incentives and disincentives to reduce waste at the source, as well as the behaviors that lead to marine debris. Likewise, appropriate and strategic levels of enforcement of regulations are needed to provide for strong deterrents to behaviors that result in the most marine debris.

The Project Team reconvened the Marine Debris Leadership Team to review the layout of the Draft Marine Debris Reduction Plan and to obtain direct input into the design and development of Actions to address the Strategies. Through a facilitated process, the Leadership Team provided distinct direction to result in a Plan that would provide for significant ability to be implemented. A key point that was taken from the Leadership Team was a shared responsibility in implementing the Plan. Leadership for the Plan would be from the VA Coastal Zone Management Program but actions would be based on the idea that all Virginians would have a role in implementation. The Plan was agreed to have a foundation in basic principles that the recommendations would be politically, socially and economically feasible, lead by the VA CZM, an ongoing evaluative process was necessary with an adaptive management approach, and would be a result of combined behavior changes, legislative changes, regulatory enforcement, informed communities, access to alternatives than typical, and increased infrastructure would be in place.

Appendix—Communication Tracking Database

Ocean Use Mapping

Last	First	Representing	Port	Gear type	Share Maps Y/N	Avail Time	Preferred Location	Initial Response Following FMAC	Date contacted and outcome
Abbott	William	Hampton Rds WA	Norfolk					VM and EM, no response	
Amory	Meade	LD Amory Seafood	Hampton	Wholesaler, dredge	Y	Varies	Hampton	Attended FMAC mtg	
Bowden	Ernie	ES WA	ES Chincoteague					VM and EM, no response	Several follow-up contacts with no response. Via his wife, he commented that he viewed the maps in Virginia Beach and was satified with them.
Casey	Jim	Casey Sf--Red Crab	NNews	Processor				Met w him, interested in followup	
Crisher	Bobby	Spiny Dogfish, Conch	VB Rudee	Potter, Gillnet	Y	AFTER HRS	VB	Attended FMAC mtg, wants followup for wind, comfortable with C@S maps	
Dawson	Jim	Sea Bass	Chincoteague	Potter	Y	AFTER HRS	ES	Interested in followup	
Deihl	Monty	Omega Protien	Reedville	Seine	Y	Varies	Reedville	Interested in followup	10/28, willing to share data. 60% of 160,000t is OS, 95% OS is <12mi, 5% is 12-25mi OS
Estridge	Tommy	conch	Chincoteague	Potter	Y	AFTER HRS	ES	Interested in followup	
Feller	Skip	Charter-longline	VB Rudee	Longline	Y	AFTER HRS	VB	Attended FMAC mtg, wants followup	
Georgiades	John	Georges Seafood	Norfolk	Wholesaler	Y	AFTER HRS	VB	Interested in followup	
Grey	David	American Scallop	Norfolk	Processor				VM and EM, no response	
Hancock	CD	Coastal VA WA	Hampton					VM and EM, no response	
Hodges	Mark	Sea Bass	VB Rudee	Potter	Y	AFTER HRS	VB	Interested in followup	
Husky	Kim	Seafood Council	Nnews		Y	AFTER HRS	Nnews, VB	Attended FMAC mtg, wants followup, will assist	
MacDonald	Scott	Spots Fish Co	VB Lynnhaven	Wholesaler	Y	AFTER HRS	VB	Will coordinate field mtg	11/13, Confirmed only Gillnet and Longline land in VB, indicated industry selected Bobby Crisher to validate maps, Crisher has confirmed C@S VB maps representative 11/4 met in person, all areas he used for conch were represented in pot/trap map. Eager to talk about wind energy area. Also in attendence: Wayne Mears.
Miles	Don	Conch	Oyster	Pots	Y	AFTER HRS	Oyster	Met at his oyster house	10/23, met in-person, comfortable with NNews dredge C@S, but indicates 90% of 2013 landings in New Bedford MA for him
Mullis	Ed	B&C Sf--Scallop	Nnews	Scallop Processor	Y	AFTER HRS	Nnews	Met w him, interested in followup	
Nixon	Pete	Lower CB WA	Norfolk					VM and EM, no response	
Peabody	Michelle	Peabody Seafood	NNews	Scallop Processor	Y				10/23, met in-person, comfortable with NNews dredge C@S maps, all her boats return to port
Robbins	Rick	CB Packing	NNews	Wholesaler	Y	Varies	Nnews, VB	Attended FMAC mtg, wants followup	
Smith	Ken	VA WA	Heathsville					VM and EM, no response	
Walker	Chris	Gillnetter	ES	Gillnet				VM and EM, no response	
Wells	Billy	Wells Scallop	Seaford	Dredge, processor				VM and EM, no response	

Appendix—July Virginia Marine Resources Commission, Finfish Management Advisory Committee Attendees

VMRC FMAC July 15 Attendees			
Name		Representing	Location
Ludford	Chris	gillnet, crab, oyster	VA Beach
Crisher	Bob	gillnet, conch	VA Beach
Robins	Rick	Conch	Hampton
Husky	Kim	Seafood Council	Newport News
Feller	Skip	Party Charter	VA Beach
Roman	Sally	VMRC	Virginia
Odell	Jay	TNC	Virginia
Janeski	Todd	VCU	Virginia
Wivell	Tim	Gillnet	Cape Charles VA
Smith	Curt	ANPDC	Eastern Shore
McKay	Laura	VCZM	Virginia
St Martin	Kevin	Rutgers	New Jersey
Oreilly	Rob	VMRC	Virginia
Deem	Jeff	FMAC	Virginia
Ruhle	Jimmy	Trawl	VA-NC

Appendix—Final Collaborative Commercial Outreach Communication Document

Stakeholder Contact Script/Talking Points
Initial Contact: Inquiry about Engaging Sector

Process:

1. Reach out with initial call or e-mail to introduce ourselves, request conversation and set up time.
2. Do background research on mission of organization and sector, review of sector-specific communication materials, understanding of "what's in it for them?"
3. Engage using script below.
4. Record notes for tracking and follow-up.

Background on Stakeholder:

- Name:
- Organization:

Objectives/Agenda for the Call or Contact: [will be adapted for each contact, as needed]

A. Inform you about ocean planning, MARCO and the Mid-Atlantic Ocean Mapping and Planning Project [as necessary].
B. Gather input from you (as a representative of your organization and, to the extent that you can comment with regards to your sector overall) on:

   i. Current and planned (in the mid-term) uses of the ocean for your organization and sector, and

   ii. Changes that you anticipate in your organization's uses of the ocean (in the mid-term) as well as changes in uses of the ocean that anticipate within your sector

   iii. Changes in uses of the ocean by other sectors that you think may affect your organization and your sector's current and planned uses.

C. What additional data or information is needed to make progress or overcome obstacles to advance your objectives.
D. Solicit type and extent of engagement in portal enhancement project efforts, including:
   i. providing/obtaining additional data;

ii. peer review of data;
iii. provide periodic input/feedback formally or informally;
iv. cooperate in identifying and or contacting others;
v. willingness to participate in and help with convening meeting/workshop

A. Regional Ocean Planning/MARCO

1. [Refer to background information sent about the Project, e.g. Project Fact Sheet, Sector Specific Fact Sheet, MARCO Fact Sheet, Frequently Asked Questions, List of Data and Information Needs, web-links] How much do you know about Mid-Atlantic Regional Council on the Ocean (MARCO) and Regional Ocean Planning? (Depending on familiarity, use script below, or may be able to skip)

2. To what extent are you aware or involved with marine or ocean planning in your state or the region? Do you have any questions or concerns about these efforts?

B. Sector Views and Needs

1. Please describe what your [your sector's] major objectives are for future access to and use of ocean resources.
2. What kinds of situations or actions would impact your members' future use of the ocean? (If needed, explain come possible impacts, impediments, conflicts or constraints.)
3. Does the Portal sound like a tool that your organization might be interested in using or learning more about? How can MARCO's Mapping and Planning Portal be developed to benefit you? What would encourage you to use the Portal? (i.e. specific kinds of information, being user-friendly, other?)
4. Do you have any concerns about the development of the Mapping and Planning Portal?

C. Data Gathering and Development

1. We have developed a preliminary list of data and information needs for the Mapping and Planning Portal for your sector of ocean use, which we sent to you prior to the call. Have you had a chance to review?
2. Is there additional or different your data or information that you [your sector] wants, or that is needed to advance your objectives or overcome conflicts or constraints to achieve objectives?

FOR STAKEHOLDERS WITH TECHNCIAL KNOWLEDGE ABOUT CRITERIA:

1.What are the criteria necessary for your ocean use? (e.g. depth, benthic nature, currents, windspeed, etc.)

2.What is the

D. Future Collaboration

1. How are you interested in continuing to participate in the effort?:
    a. peer review data;
    b. provide periodic input or feedback formally or informally?
    c. Other? Provide data, co-sponsor a Portal training event?
    d. Include Portal updates on your web site or in your newsletter?
2. Would you be willing to help plan a workshop/meeting with your sector that would be focused on identifying data needs, obtaining feedback on use and functions of the portal and possibly developing new data?
3. Who else would you advise that we contact to provide further input and participate in future meetings?

Any other questions, ideas or concerns?
Thanks very much for taking the time to talk with us.
Looking forward to contenting to work with you!
Talking points to describe key topics and answer questions:

What is MARCO?

- The Mid-Atlantic Regional Council on the Ocean (MARCO) is a collaboration among the states of NY, NJ, DE, MD, and VA for managing ocean resources to improve their health and ensure the waters off the Mid-Atlantic continue to contribute to the region's quality of life and economic vitality. MARCO was formed in 2009 through a signed agreement by the governors of the five states to:
    1. Support the sustainable development of renewable offshore energy to make the Mid-Atlantic more self-reliant and economically stable
    2. Identify and protect important offshore habitats that are critical to sustaining seafood, tourism opportunities, and other job-creating benefits
    3. Prepare coastal communities for regional climate change impacts.
    4. Improve the region's water quality to sustain seafood, tourism and ocean health.
    5. Build capacity for regional ocean planning that will help maximize our Mid-Atlantic economy and our ocean's ecological health.

What is the Portal?

- The MARCO Mapping and Planning Portal was developed in 2010 as an online mapping tool that consolidates available geo-spatial data, and enables state, federal, and local users to visualize and analyze ocean resource and human use information.

- This effort builds upon and complements other ocean planning activities in the region. [e.g. insert state specifics e.g. MD Ocean Atlas, NY Ocean Plan].

What features does the MARCO Mapping and Planning Portal have?

- Web-based mapping viewer/data portal displaying the extent of information available about marine waters in the Mid-Atlantic;

- User-friendly interface design with interactive reporting features.

Why was the MARCO Mapping and Planning Portal developed?

- To support MARCO's commitment to a comprehensive regional approach to ocean planning and management.

- The Portal also addresses the call of the U.S. National Ocean Policy (2010) for regional scale ocean planning supported by a robust ocean data and information management system that includes a wide range of human use, environmental, socio-economic, and regulatory data.

- Assures that states and ocean stakeholders and users in the region have a role in identifying information for incorporation into the Portal and input to guide any future federal regional ocean planning efforts.

What are the objectives of the MARCO Mapping and Planning Portal project?:

- The overarching objective is to improve stakeholder and public knowledge about ocean uses and resources through:
    - Educating ocean managers, users, and key stakeholders about the Portal and the data being used to enhance the portal.
    - Identifying data needs and priorities for ongoing data collection and future research.
    - Including reporting and other features that can be used to enhance understanding about ocean resources, and inform ocean planning and management decisions.
    - Supporting MARCO's involvement in evolving federal regional offshore planning efforts.

How are stakeholders involved in the project?

- The MARCO Mapping and planning Portal will be enhanced through an inclusive and transparent stakeholder process using small and larger meetings, personal communication and web-based forums to:
    - obtain peer review of existing data;
    - collect and incorporate the best data available to fill gaps;
    - identify sector-specific spatial design criteria (such as multi-use constraints, buffer areas, etc.);
    - develop new data related to ocean uses;
    - improve functionality and usability of the Portal; and
    - develop metrics for success.

- This project will also improve the Portal's usability through interactive meetings, additional personal communications, and online tools that actively engage ocean users and key stakeholders, and encourage their participation throughout the planning process.

How will data obtained from stakeholders be used?

- Data will be integrated as digital layers in the system that can be visualized and overlaid with other data.

- Data and information identified through stakeholder input, and protocols for the display of the data will be vetted with the stakeholders before making them publicly available.

- [Insert as examples sector specific information if available on key sector challenges and economic benefits to region, and how the Portal can be used to further their sector objectives. (See Sector Fact Sheet.)]

Who is the Project Team?

- **Tony MacDonald**, Director of the Monmouth University Urban Coast Institute is the principal investigator and project manager.
- **Jeanne Herb** from the Rutgers University, Edward J. Bloustein School is the Stakeholder Engagement Team lead.
- **Jay Odell**, Mid-Atlantic Marine Director from The Nature Conservancy is the Technical Team lead, supported by **Rick Lathrop** from the Rutgers Center for Remote Sensing and Spatial Analysis and **Charles Steinback** from Ecotrust.
- A **Project Steering Committee** has been set up that includes MARCO Management Board Representative (NY.NJ, DE, MD and VA), and a representative from the National

Oceanic and Atmospheric Administration The project point of contact for _[state]_____ is _____.

What is the Project Timeline and Deliverables?

- Project timeframe is January 2012 through May of 2013.

- The team anticipates developing three enhanced versions of the Portal over the course of the project for review by stakeholder groups:
    - **Version 1**, available in late spring/early summer 2012, will include improved design and additional data focusing on offshore wind energy and ports and navigation;
    - **Version 2** will be available late fall 2012, and include additional recreational use and fisheries data and information, and
    - **Version 3**, with improved usability and reporting features, will be available in late spring 2013.

Appendix—Marine Debris Web-Survey

Virginia Marine Debris Survey
Ready for SurveyMonkey: Oct 25, 2013

Virginia Marine Debris Survey – BETA TEST

Thank you for taking the time to complete this survey by the Virginia Coastal Zone Management Program and their partners. We are seeking your opinions and knowledge on **marine debris*** to inform the development of reduction goals and strategies to address this issue in the Commonwealth. Your feedback is important to us as we move forward.

This survey is 16 questions and should take approximately 15 minutes to complete.

If you have any questions regarding this survey or the development of the Virginia Marine Debris Reduction Plan, please contact Katie Register (registerkm@longwood.edu).

**** Marine debris*** *is any persistent solid material that is manufactured or processed and directly or indirectly, intentionally or unintentionally, disposed of or abandoned into the marine environment. It can come from land, such as litter that washes into storm drains and rivers, and from sea, such as lost fishing gear and boat waste and may include plastics such as bags, food and beverage containers, fishing line and nets.*

Which of these best describes your affiliation with marine debris:
Local government
State government
Federal government
Nonprofit organization
Academia/educational institute
Community/civic group
Industry or business
Other

What state do you live in?

What county do you live in?

1. What are the top three things that bother you the most about marine debris?

   1: _____
   2: _____
   3: _____

2. In your opinion, on a scale of 1-5, with 1 being low and 5 being high, how important is marine debris relative to the following terms?

a. Human safety (broken glass, propeller entanglement, medical waste)

b. Navigation hazards

c. Habitat impacts

d. Protected areas

e. Aesthetics

f. Endangered species

g. Financial cost to communities to prevent or pick up litter

h. Loss of tourism income

i. Loss of economically important species due to lost or abandoned (derelict) fishing gear

j. Animal entanglement

k. Animal ingestion

l. Debris as a method of transporting invasive species

m. Storm or flooding-related impacts

n. Impacts on food chain from plastics and associated toxins

o. Other (Comment box)

3. What is your role in preventing and reducing marine debris?

(Select all that apply.)

a. I organize clean-up efforts

b. I organize educational efforts (e.g., outreach efforts on litter prevention, distribute fishing line recycling bins)

c. I address the impacts (e.g., rescue entangled animals)

d. I work in solid waste management to regulate or manage the sources of marine debris

e. I work in stormwater management to regulate or manage the sources of marine debris

f. I do research on marine debris

g. I develop products to prevent or reduce wastes

h. I develop policies to prevent or reduce wastes

i. I am a volunteer who participates or would like to participate in an event to reduce or clean up debris

j. None of the above

k. Other *(please describe)*: (Comment box)

4. In your opinion, on a scale of 1-5, 1 being low and 5 being high, where does the management of litter or marine debris fall in your prioritization?

5. In your opinion, on a scale of 1-5, 1 being low and 5 being high, how much does each item below contribute to marine debris in Virginia?

    a. Release of balloons

    b. Cigarette butts and smoking-related litter

    c. Crab pots, nets or buoys from lost or abandoned (derelict) commercial fishing gear

    d. Monofilament fishing line and other lost or abandoned (derelict) recreational fishing gear

    e. Lost or abandoned (derelict) vessels

    f. Glass, metal, and rubber waste

    g. Micro-plastics (fragmentation of large macro-plastic and microbead plastics produced for household and personal hygiene products i.e., detergents, soaps, scrubs, lotions, cosmetics, toothpaste)

    h. Plastic single-use bags

    i. Beverage containers, straws, and food-related packaging

    j. Waste from cargo, cruise, or other ocean-going commercial ships

    k. Waste from land-based industrial/manufacturing facilities

    l. Maintenance of trash receptacles, dumpsters

    m. Litter from uncovered trucks

    n. Other *(please list specific local concerns)*

    (Comment box)

6. Which of the above sources do you think are the most important to reduce? Please select your top three (3). (VIRGINIA: we would like people to be able to put check marks next to no more than 3 items)

    a. Release of balloons

    b. Cigarette butts and smoking-related litter

    c. Crab pots, nets or buoys from lost or abandoned (derelict) commercial fishing gear

d. Monofilament fishing line and other lost or abandoned (derelict) recreational fishing gear

e. Lost or abandoned (derelict) vessels

f. Glass, metal, and rubber waste

g. Micro-plastics (fragmentation of large macro-plastic and microbead plastics produced for household and personal hygiene products i.e., detergents, soaps, scrubs, lotions, cosmetics, toothpaste)

h. Plastic single-use bags

i. Beverage containers, straws, and food-related packaging

j. Waste from cargo, cruise, or other ocean-going commercial ships

k. Waste from land-based industrial/manufacturing facilities

l. Maintenance of trash receptacles, dumpsters

m. Litter from uncovered trucks

7. In your opinion, on a scale of 1-5, 1 being low and 5 being high, how important should the following be for the state of Virginia to reduce through new technologies, policies/laws, education, etc.

    a. Release of balloons

    b. Cigarette butts and smoking-related litter

    c. Crab pots, nets or buoys from lost or abandoned (derelict) commercial fishing gear

    d. Monofilament fishing line and other lost or abandoned (derelict) recreational fishing gear

    e. Lost or abandoned (derelict) vessels

    f. Glass, metal, and rubber waste

    g. Micro-plastics (fragmentation of large macro-plastic and microbead plastics produced for household and personal hygiene products i.e., detergents, soaps, scrubs, lotions, cosmetics, toothpaste)

    h. Plastic single-use bags

    i. Beverage containers, straws, and food-related packaging

    j. Waste from cargo, cruise, or other ocean-going commercial ships

    k. Waste from land-based industrial/manufacturing facilities

    l. Maintenance of trash receptacles, dumpsters

    m. Litter from uncovered trucks

n. Other (please list specific local concerns)

(Comment box)

8. Of the above list, which are the top three (3) MOST ACHEIVABLE things that Virginia could focus on in the next few years to reduce marine debris?

    a. Release of balloons

    b. Cigarette butts and smoking-related litter

    c. Crab pots, nets or buoys from lost or abandoned (derelict) commercial fishing gear

    d. Monofilament fishing line and other lost or abandoned (derelict) recreational fishing gear

    e. Lost or abandoned (derelict) vessels

    f. Glass, metal, and rubber waste

    g. Micro-plastics (fragmentation of large macro-plastic and microbead plastics produced for household and personal hygiene products i.e., detergents, soaps, scrubs, lotions, cosmetics, toothpaste)

    h. Plastic single-use bags

    i. Beverage containers, straws, and food-related packaging

    j. Waste from cargo, cruise, or other ocean-going commercial ships

    k. Waste from land-based industrial/manufacturing facilities

    l. Maintenance of trash receptacles, dumpsters

    m. Litter from uncovered trucks

9. Are you working with municipal stormwater management or an MS4 (Municipal Separate Storm Sewer Systems)?

    Yes (*auto jump to follow-up question if response is positive)*
    No
    You answered, “Yes”. Please tell us how you are addressing (floatable) litter in your plan. What tools or resources would improve your efforts? If you have documents or attachments you would like to share, please email them to registerkm@longwood.edu.

10. How might Virginia improve efforts to eliminate the sources of marine debris? Please provide three (3) suggestions.

    Comment box)

Splash Page to introduce the topic of **land-based sources**
Land-based sources of marine debris include food- and beverage-related items, bags, smoking-related items, construction materials, balloons, tires, fireworks and other solid waste items.

11. In your opinion, on a scale of 1-5, 1 being low and 5 high, when thinking about **land-based sources** of marine debris, which of the following strategies or management actions do you think will be most effective to minimize debris?

a. Education and outreach on litter prevention and marine debris impacts
b. Improved solid waste management
c. A tax on plastic bags or deposits on bottles
d. Well-maintained trash receptacles
e. Best practices for improving stormwater management
f. Reduce discharge of solid waste into waterways
g. Legislation and policies to support solid waste minimization and management
h. Enforcement of regulations and permits regarding litter, dumping, solid waste management, stormwater, and surface runoff
i. Regular cleanup efforts on coastal lands, in watersheds, and in waterways
j. Advanced planning for the removal of marine debris after natural disasters such as hurricanes or flooding events.
e. Infrastructure improvements (such as trash receptacles, waste transfer stations, public recycling centers, etc.)
k. Other _____

Splash page to introduce **ocean-based (or water-based)** sources

Ocean-based sources of marine debris include solid waste; lost cargo; derelict fishing gear (abandoned, lost, or otherwise discarded nets, crab pots, traps, fishing line, etc.); and abandoned vessels.

12. In your opinion, on a scale of 1-5, with 1 being low and 5 being high, when thinking about **ocean-based (or water-based) sources** of marine debris, which of the following strategies or management actions do you think will be most effective to minimize debris?

a. Education and outreach on marine debris impacts, prevention, and management for the fishing and boating communities
b. Minimize incidents of ocean dumping by promoting proper waste storage at sea, and proper disposal at port reception facilities and marinas
c. Minimize abandonment of vessels
d. Minimize accidental loss of cargo, solid waste, and gear at sea by implementing fishing industry best management practices (BMP)
e. Reduce loss of fishing gear and/or its impacts through fishing gear modifications or alternative technologies
f. Legislation and policies to prevent and manage marine debris from at-sea sources
g. Enforce compliance with requirements that marinas, boatyards, and docks have well-maintained trash receptacles or other infrastructure
h. Increase the capacity at docks, ports and marinas to accept (and recycle) waste
i. Other _____

Splash page introducing **legacy** marine debris (include historic accumulation)

Legacy marine debris is solid waste that has accumulated over time on shorelines, in coastal waters and the ocean. It can include all of the land-based and ocean-based marine debris items listed earlier.

13. In your opinion, on a scale of 1-5, with 1 being low and 5 being high, when thinking about **"legacy"** marine debris, which of the following strategies or management actions do you think will be most effective to minimize this type of debris?

a. Education and outreach on marine debris impacts and removal
b. Removal of accumulated marine debris using the latest technologies and methods
c. Offer incentives for removal of derelict fishing gear, derelict vessels, and accumulations of

marine debris
d. Other _____

14. In your opinion, what are the most effective rules, laws, regulations or educational efforts that address the sources of marine debris?
Please list three (3) below:

15. Are there gaps in knowledge about marine debris that you think should be explored? If so, please list.

16. Please share here any other ideas, thoughts, emerging issues, or concerns you have about marine debris.

Thank you again for your time to complete our survey! Your input is very important to us as we move forward in developing a Virginia Marine Debris Reduction Plan that identifies achievable solutions.

If you would like more information, would like to stay informed as this process advances or would like to assist in our efforts, please contact Katie Register (registerkm@longwood.edu) or visit these web sites:

Virginia Coastal Zone Management: **Virginia Marine Debris**
http://www.deq.virginia.gov/Programs/CoastalZoneManagement/CZMIssuesInitiatives/VirginiaMarineDebris.aspx

Clean Virginia Waterways: Marine Debris Plan
http://www.longwood.edu/cleanva/marinedebrisplan.html

National Oceanic and Atmospheric Administration: NOAA Marine Debris Program
http://marinedebris.noaa.gov/

US Environmental Protection Agency: Trash Free Waters
http://water.epa.gov/type/oceb/marinedebris/

"Close" link jumps to the VACZM Page on Marine Debris

Appendix—Example of Coding for Survey Analysis

Q17 Are there gaps in knowledge about Marine Debris that you thing should be explored. If so, please list.

Education

1. Commercial fishing licenses issued only after educating about dumping or fishing tackle loss.
2. Environmental impact of pollution at sea should be taught in all schools.
3. Education of the public and industry
4. More education and outreach on the impacts of marine debris.
5. How many people know the short-term and long-term economic costs of marine debris? Most people & industries won't take action until they realize the economic impact on them.
6. most people are not aware of the devastating effects of marine debris
7. More education at anchorage vessels in the Chesapeake Bay
8. Marine debris starts on land - average lay person has difficulty conceptualizing and making it relevant to them that marine debris starts in their backyard.
9. The effects of microbeads The effects of chemicals passing through treatment plants Educating people willing to pick up debris on when they can and cannot pick up abandoned traps, drums, etc.
10. Personally, I don't know a lot about abandoned vessels. I figured they were registered like cars, so you couldn't just dump them somewhere...
11. People do not understand that the piece of trash they throw on the ground can end up in our oceans. They still don't understand the connection.
12. Community education efforts are critical to tackling this problem.
13. Effective and continuous education
14. Logistics of waste management and best practices, Micro plastics and other nanoparticles developed for many different products. Education about medical wastes. Documented educational films about the management of the oceans and what contributes to pollution in each area.
15. More commercial fishing education
16. Recognize and encourage K12 efforts
17. Average person doesn't realize how much microbead plastics are everywhere
18. More active education efforts that show the effects of marine debris.
19. Continued education of the end result of litter
20. No need for hyperbole, but show the long-term economic impact.
21. The commercial watermen need greater education and much more enforcement
22. We need to campaign that trash is a resource and should not be thrown away but reused. Once we give it value, it will less likely end up in places that it doesn't belong, like the ocean.
23. There's lots of research on the chemistry and biological side of things, but very little that I can tell in the marine policy/social science realm. Impacts, i.e., dollar signs, in economic/tourism/fishing (rec and commercial) will resonate with decision-makers.
24. publicity on amount/life of disposable items making way to waters and continued education on problems with lawn runoff

25. The general populations are in essence, dumb masses, when it comes to marine debris and its probable impact to nearly everything we do and plan to do with respect to accessing waterways for commerce or pleasure - great gaps in education and outreach presenting facts and figures based on studies and science.
26. Education in the classrooms
27. More information should be shared regarding whatever cruise ships and cargo ships release in the open ocean or nearby bays and harbors.

Extent/Impacts/Sources

1. extent of commercially produce microplastics in the Bay
2. magnitude and impact of micro-plastics magnitude and impact of cigarette related litter
3. Prioritize sources- what are they and what are their relative contributions Prioritize issues- what impacts of marine debris are you most concerned about, which types of litter most contribute to the top issues?
4. There is a significant gap in our knowledge of the sources, amount, fate, transport, and effects of microplastics on the marine environment.
5. We have no idea how many micro-plastics are getting through treatment plants or are accumulated in aquatic sediments
6. source tracking
7. Sources from litter vs. poor waste handling (no lids on cans, trucks that drop debris, lack of trash cans)
8. Micro-plastic--sources, impacts, technology for removing
9. Amount size and location of debris or likely debris fields
10. monitoring to determine if regulations or policies are working

Policy/Research needs

1. What laws have changed the types of litter in an area (besides bottle deposits and bag bills).
2. ownership of storm related debris; who is responsible for removing debris on private property
3. There is a significant gap in our knowledge of the sources, amount, fate, transport, and effects of microplastics on the marine environment.
4. I wish I knew more about the latest and best available control technologies for marine debris....are there new ocean sweepers or ship based technologies that can clean up or suck up some of the gyre debris?
5. There's lots of research on the chemistry and biological side of things, but very little that I can tell in the marine policy/social science realm. Impacts, i.e., dollar signs, in economic/tourism/fishing (rec and commercial) will resonate with decision-makers.
6. Micro-plastic--sources, impacts, technology for removing
7. monitoring to determine if regulations or policies are working

Human Health

1. The effects of microbeads The effects of chemicals passing through treatment plants

2. Human health impacts of plastics in the marine environment, including of bio-accumulation of toxins up the food web.
3. Effects of ingestion of micro-plastic
4. We have no idea how many micro-plastics are getting through treatment plants or are accumulated in aquatic sediments
5. Impact of marine debris on our health through consumption of marine life. Impact of marine debris on our drinking water supply.
6. Impacts of microplastics on human health, sources of debris and accumulation hot spots, as well as.

Enforcement

1. No insistence on enforcing laws involving foreign flagged vessels operating in US waters including. The Chesapeake Bay, Elizabeth and James Rivers...
2. Existing laws not enforced to the fullest extent possible.
3. With our budget shortfall/crisis in the country, why aren't we strengthening our enforcement side and begin fining those individuals for infractions such as illegal dumping, littering or dumping waste in the ocean?
4. While often there are policies and regulations that prohibit or control activities that create marine debris - enforcement is lax or non existent

Wildlife

1. most people are not aware of the devastating effects of marine debris
2. How marine debris affects wildlife
3. Effects of ingestion and/or entanglement on fish, birds, mammals. Toxins released as materials breakdown and their effects on sensitive wildlife
4. Effect on marine life; publicity on amount/life of disposable items making way to waters and continued education on problems with lawn runoff

Economic Impacts/Issues

1. Economic impact of the lack of enforcement involving illegal dumping by foreign flagged vessels in US coastal and Bay waters.
2. How many people know the short-term and long-term economic costs of marine debris? Most people & industries won't take action until they realize the economic impact on them.
3. What social marketing efforts have worked on littering. Microplastics: Sources, fates, impacts. True ECONOMIC cost of litter & marine debris. How many JOBS could we create in VA if we had more recycling? If a bottle bill in VA can't happen, can we become the #1 recycling state?
4. No need for hyperbole, but show the long-term economic impact.

Navigation Hazards

1. I believe the major marine debris is that which restricts navigation. I perceive your focus to be narrowly focused on ecological issues. The restriction of navigable waters due to sediment infill impacts property rights, economic development and the quality of life for our residents and visitors

Abandoned Vessels

1. Personally, I don't know a lot about abandoned vessels. I figured they were registered like cars, so you couldn't just dump them somewhere...

Other

1. Yes, of course!!! Plastic waste (i.e., bottles, bags, straws)
2. Stop and look around
3. Sorry, out of time
4. no
5. There are plenty of groups imbedded in the communities that want to help with this cleanup. Civic groups, churches, industrial employees, etc. that would volunteer their time to clean and recycle these pollutants. Possibly use established volunteer group experts such as regional planning district commission offices to coordinate this effort. They could also educate target offenders.

Appendix—Marine Debris Personal Interview Survey Questions

VMDRP Interviews

Person Interviewed: _____

Interviewer: _____

Date: _____

Thank you for agreeing to be interviewed today about the Virginia Marine Debris Reduction Plan. As you know, we are interested in gathering input from stakeholders like you, and we are asking that you share your thoughts about the recent Survey that we conducted.

Questions	Responses
Please give me 3 examples of your involvement in marine debris, litter prevention, recycling, waste management or related issues.	
On a scale of 1 to 5, how concerned are you about marine debris?	1 2 3 4 5
Before we look at the survey highlights, I like to ask you: what is on your mind regarding marine debris? (A&T— is this what you had in mind for this question?)	
And what do you think should be done about this?	
What has been successful in Virginia in your opinion in reducing or managing marine debris?	
What is going well?	
What is not going well?	
What do you think ought to be different?	

We sent a survey about marine debris in Virginia to more than 650 people, and we got responses from 151 people. I'd like to have you comment on some of the highlights from the survey.

First, one of the Survey questions asked about PRIORITIES -- "How important should the following be for the State of Virginia to reduce."	(A&T: Should we write this question as "On a scale of 1 to 5, do you agree with this list of priority items?" or leave this

As I read the list, please think about if you agree with the list…or if there are things on the list that surprise you… The top priorities from the survey were: Plastic single-use bags Beverage and food related litter Cigarette butts & smoking related litter Microplastics Commercial fishing gear Recreational fishing gear Do you agree with this list of priority items?	an open answer?
Was something on this list that surprised you? If so, what was it?	
Is something not on the list that you expected would be there? If so, what was it?	
Another Survey question asked about ACHIEVABILITY -- "Which are the most achievable things that VIRGINIA could focus on in the next few years to reduce marine debris?" As I read the list, please think about if you agree with the list…or if there are things on the list that surprise you… The "most achievable" things from the survey were: To Be Added To Be Added To Be Added To Be Added To Be Added Do you agree with this list of "achievable" items?	(A&T: Should we write this question as "On a scale of 1 to 5, do you agree with this list …?" or leave this an open answer?
Should we add another question re: achievability?	
In order to structure the plan, we would like your help in determining a time frame. What are the top two things you think can really be achieved in Virginia in the near term (within the next two years)?	

What are the top two things you think can really be achieved in Virginia in the **Mid term** (up to 5 years)?	
What are the top two things you think can really be achieved in Virginia in the **Long term** (5 to 10 years)?	
We'd also like your opinions about some possible recommendations for Virginia's Marine Debris Reduction Plan. On a scale of 1 to 5 (1 being "not important" and 5 being "very important") how would you rate this possible recommendations? (A&T—this is just a quick list – not complete!) Virginia should have a permanent marine debris program in the state. Virginia should focus on land-based sources of plastic. Virginia needs to increase anti-litter enforcement. Virginia needs to increase education and outreach.	A&T: The three of us did not discuss this -- do we want to ask about possible recommendations/actions? I think we should except I am concerned about time. Maybe we should look hard at any questions we could cut or combine.
Who in should be **leading** marine debris reduction in Virginia?	
Who in should be **participating** marine debris reduction in Virginia?	
What do you think is the proper role for Virginia in reducing marine debris? In other words, What should the state government do?	
Now, the "Magic Wand" question. If you had no constraints, what would you do to reduce marine debris?	
Is there anything else you would like to share?	

Is it all right with you if we publish your name, title and place of employment in the acknowledgement portion of the final the Virginia Marine Debris Reduction Plan?	Yes No Please get back to me

Thank you so much for your time! I appreciate your input.

What do we want to learn from interviewees?
They will provide one more layer of data higher level of clarification.
We want them to react to the survey results, offer insights,
We want their input on spending resources

Appendix—Marine Debris Reduction Leadership Team

LeAnne Astin, Ecologist II**,** Stormwater Planning Division**,** Fairfax County
Donna Bilkovic, PhD., Research Associate Professor, Virginia Institute of Marine Science
John W. Deuel, Environmental Sustainability Consultant, GreenQuest
Kirk J. Havens, PhD, Director, Coastal Watersheds Program**,** Asst. Director, Center for Coastal Resources Management**,** Virginia Institute of Marine Science
Nicholas Mallos, Conservation Biologist, Marine Debris Specialist**,** Ocean Conservancy
Laura McKay, Manager, Virginia Coastal Zone Management Program
Geralyn Mireles, Wildlife Biologist**,** Back Bay National Wildlife Refuge
Alicia Nelson, Fisheries Management**,** *Virginia Marine* Resources Commission
Kathy O'Hara, Marine Debris Researcher & Consultant, Virginia Aquarium Stranding Response Program
Susan Park, Assistant Director for Research**,** Virginia Sea Grant**,** Virginia Institute of Marine Science
Jason Rolfe, Southeast and Caribbean Regional Coordinator**,** National Oceanic and Atmospheric Administration, Marine Debris Program
Kathy Russell, Education and Outreach Coordinator**,** TFC Recycling
Renee Searfoss, Ocean and Dredge Disposal Team Lead**,** Office of Monitoring and Assessment**,** U.S.
EPA Region III
Anne Smith, Virginia Clean Marina Program**,** Virginia Institute of Marine Science
Mark Swingle, Director of Research & Conservation**,** Virginia Aquarium & Marine Science Center
Christina Trapani, Owner, Eco Maniac Company**,** Marine Debris Researcher & Consultant, Virginia
Beach Clean Community Commission

Appendix—Marine Debris Reduction Plan

The Virginia Marine Debris Reduction Plan

The strategies listed under each goal are described in general terms and will require further work to develop specific steps to be taken. However, more specific steps are outlined in Section 6 for those actions chosen as near-term (next 2 years) priorities.

GOAL 1. Program Leadership

Successful implementation of the VMDRP depends on a collaborative and coordinated approach, engaging related programs, coastal program partners, and local governments that already include waste reduction and proper waste management as part of their programs.

Audience: A first priority is to organize a long-term results-oriented Virginia Marine Debris Advisory Committee of partners.

The Virginia Marine Debris Advisory Committee should be made up of potential implementers (many of whom served on the VMDRP leadership team) as well as other stakeholders to be identified. In addition, elected officials with the ability to assist with improving regulations should be invited to serve.
The Virginia Marine Debris Advisory Committee would:

- Oversee a coordinated program to reduce targeted sources of marine debris based on the goals outlined in the Virginia Marine Debris Reduction Plan.
- Establish criteria to track the progress of implementation, accomplishments, and challenges (barriers) of implementation of this plan.
- Align the VMDRP with other goals as identified within the Virginia CZM Program, state agencies including DEQ, DCR, and VMRC, and with regional initiatives when feasible.
- Use an adaptive management approach to continually improve the plan based on a two-year evaluation cycle.

GOAL 1 Program Leadership Strategies

1.1 Change Behaviors

Action 1.1.a Examine ways to work around the many silos of current activities and change management behavior to be more collaborative.

1.2 Collaboration

Action 1.2.a Improve efficiencies by fostering coordination, cooperation, and communication among all the organizations and stakeholders currently involved in preventing and removing marine debris: government agencies (federal, state and local), nonprofit organizations, research institutions, industry, and consumers. Improve communication among government research institutions, industry, consumers, and organizations.

Action 1.2.b Determine who has not yet been actively involved in this process and invite missing parties to the table.

Action 1.2.c Create, maintain, and share a list of litter-prevention and marine debris projects, best practices, and research that are underway.

Action 1.2.d Create a web site to support collaboration, increase internal and external communication, and document the implementation of VMDRP strategies.

1.3 Increase Knowledge

Action 1.3.a Identify knowledge gaps and foster collaboration on research.

1.4 Fund

Action 1.4.a Identify existing and potential revenue streams to sustain statewide marine debris and litter prevention.

1.5 Improve Regulations

Action 3.5.a Analyze existing legislation and policies and provide recommendations to support improvements.

GOAL 2. Prevent

Reduce marine debris through prevention.

Audiences: Preventing marine debris involves the broadest audience. While everyone can be part of the solution to prevent marine debris, there are also some specific groups to be targeted, including restaurants and retail businesses; gas stations, landscape managers, local governments, especially stormwater managers; smokers; marina and boat ramp operators; event and memorial planners.

GOAL 2 Prevention Strategies

2.1 Change Behaviors

Action 2.1.a Develop and implement social marketing campaigns to reduce marine debris from specific sources, and help make the public better stewards of our oceans.

Example: Conduct, promote, and sponsor collaborative research on successful social marketing campaigns targeting common, persistent, and harmful marine debris items such as balloons.

Action 2.1.b Promote desired behavior change through incentives and disincentives (positive and negative reinforcements).

Action 2.1.c Disseminate effective best practices to address marine debris from land-based and water-based sources.

Examples: Encourage gas stations and convenience stores to offer and maintain trash cans for customers' use; encourage outdoor restaurants and retail businesses to sweep up litter outside of their business, and dispose of in trashcans as opposed to hosing down sidewalks and moving litter into gutters.

Action 2.1.d Develop and implement dedicated education and outreach initiatives, tools, and campaigns to encourage changes in behavior and improve efforts to address marine debris.

Examples: Insert marine debris topics into formal (K-12) and informal educational programming; encourage signs at marinas (such as "We are unable to provide recycling services, so please take your bottles, cans and other recyclable items home with you…then recycle!"*); encourage the application of* Keep America Beautiful's *cigarette litter prevention program with increased infrastructure, pocket ashtrays, and outreach.*

2.2 Collaboration

Action 2.2.a Create a clearinghouse of marine debris prevention activities, tools, and resources.

Action 2.2.b Develop regional approaches – when and where possible.

Examples: Create opportunities to address marine debris issues in cooperation with other Mid-Atlantic states and non-governmental organizations. Encourage collaboration between local governments within the Commonwealth of Virginia.
Regional partners may include:

- *Mid-Atlantic Regional Commission on the Ocean (MARCO)*
- *Ocean Conservancy*
- *National Oceanic and Atmospheric Administration's (NOAA) Marine Debris Program*
- *U.S. Environmental Protection Agency's (EPA) Trash Free Waters program*
- *Mid-Atlantic Sea Grant*

Action 2.2.c Collaborate with other groups to implement or expand their litter prevention turnkey programs in Virginia.

Examples: Keep America Beautiful: cigarette litter prevention program; VDGIF and VMRC monofilament fishing line recycling program.

2.3 Increase Knowledge

Action 2.3.a Increase knowledge about effective methods to change behaviors.

Examples: Methods to research can include social marketing, education, outreach, regulations, and best practices. Behaviors can include increased recycling, proper disposal, source reduction, and retrieving fishing gear. Future social marketing campaigns could target common, persistent, and harmful marine debris items such as single use plastic bags, derelict fishing gear, crab pots, microplastics, and cigarette butts.

Action 2.3.b Support systemic waste-source reduction research, including investigations of reusable and alternative materials.

Action 2.3.c Analyze ecological and economic impacts of litter and marine debris to Virginia's tourism revenue, recreational spending, and property values, and economically important species.

2.4 Fund

Action 2.4.a Identify existing and potential revenue streams to sustain statewide marine debris and litter prevention.

Action 2.4.b Seek funding from a diverse array of sources to support locally driven, community-based marine debris prevention projects that benefit coastal habitat, waterways, and wildlife.

Action 2.4.c Prioritize the allocation of funding to support implementation of the plan (including but not limited to):
- Marine debris reduction best practices
- Research
- Behavior change campaigns
- Collaboration
- Infrastructure improvements
- Removal of marine debris
- Habitat restoration to mitigate the impacts of marine debris

2.5 Improve Regulations

Action 2.5.a Analyze existing legislation and policies and provide recommendations to support waste minimization of the most common items found as marine debris (e.g., single-use plastic bags, food and beverage packaging, balloons, cigarette butts, and microbeads).

Examples: gain support and sponsorship for local ordinances and/or statewide legislation that would address marine debris items such as single-use bags; require trash receptacles, recycling collection containers, and litter-prevention messaging at businesses that sell the most common items found as marine debris (could include gas stations, convenience stores, marinas); include litter reduction in construction permits; prohibit the practice of hosing down sidewalks that moves litter into gutters and storm drains.

Action 2.5.b Support increased enforcement of Virginia's current laws such as but not limited to littering, illegal dumping, balloon releases, waste management, and stormwater runoff.

GOAL 3. Intercept

Reduce marine debris by intercepting litter at storm drains. While intercepting litter can be considered a sub-set of prevention, it has unique challenges, as well as funding and research needs.

Audiences: Trash on sidewalks and roadways often makes its way to streams via storm drains and related components of stormwater systems. Thus, the job of intercepting trash presents unique challenges for stormwater managers, the target audience for the interception goal.

GOAL 3 Interception Strategies

3.1 Change Behaviors

Action 3.1.a Assess the degree to which existing programs in Virginia municipalities include trash interception practices into existing programs (both MS4 and non-MS4 permitted localities) and facilitate cross-departmental communication to ensure local water quality programs include litter and marine debris education and management.

3.2 Collaboration

Action 3.2.a Facilitate the expansion of inter-jurisdictional programs and public-private partnerships to intercept litter.

3.3 Increase Knowledge

Action 3.3.a Conduct literature review of existing research on effectiveness of stormwater interception best practices for an array of commonly littered items and synthesize into summary document.

Action 3.3.b Conduct research to determine best practices for interception of micro-bead removal at wastewater treatment plants..

Action 3.3.c Work with local MS4 program managers to determine resource needs to address floatables and litter.

3.4 Fund

Action 3.4.a Identify existing and potential revenue streams to sustain statewide marine debris and litter prevention.

Action 3.4.c Secure dedicated funding from a diverse array of sources to support interception infrastructure and practices.

3.5 Improve Regulations

Action 3.5.a Analyze existing legislation and policies and develop strategies to improve interception infrastructure through legislation, regulations, and policies.

GOAL 4. Innovate

Reduce marine debris through innovation of materials, designs, practices, and recovery.

Audiences: Innovators in several fields can help eliminate marine debris, or render it less harmful to aquatic ecosystems and species. Materials can be modified to increase recyclability or biodegradability. Products and packaging can be re-designed to eliminate or minimize waste. Innovation can also result in in practices and behaviors that will reduce litter and marine debris. Thus, the audience is industry and trade groups, academic researchers, and manufacturing and production facilities/businesses.

GOAL 4 Innovation Strategies

4.1 Change Behaviors

Action 4.1.a Promote the adoption of innovative practices and behaviors that will lead to a reduction in litter and lost fishing gear – through engaging the media, creating educational opportunities, and developing partnerships with academic institutions, non-governmental agencies, and local, state, and regional governments.

4.2 Collaboration

Action 4.2.a Explore and develop innovative methods for sharing information and data

Examples: Smart phone Apps that can be used to promote citizen data gathering, such as geocoding the location of debris. Innovative ideas can be shared via web and cloud based clearinghouses.

Action 4.2.b Influence innovation through collaboration between government, non-governmental organizations and industry within Virginia and in the Mid-Atlantic region.

Example: Partner with "source" industries to research and develop new materials that are reusable, biodegradable, or otherwise less harmful. Explore or ways to reduce packaging and other waste.

4.3 Increase Knowledge

Action 4.3.a Conduct, promote, and sponsor collaborative research to locate and remove lost and abandoned fishing gear.

Action 4.3.b Conduct, promote, and sponsor collaborative research on alternative packaging and innovative product design for commonly littered items.

Action 4.3.c Conduct, promote, and sponsor collaborative research on innovative interception and recovery.

Action 4.3.d Conduct, promote, and sponsor collaborative research on successful social marketing campaigns targeting common, persistent, and harmful marine debris items such as balloons, single use plastic bags, lost and derelict fishing gear, crab pots, microplastics, and cigarette butts.

4.4 Fund

Action 4.4.a Incentivize public-private partnerships to fund alternative material research and development as well as commercialization of the results of the partnerships.

Action 4.4.b Provide incentives (or subsidies) to encourage the use and adoption of alternative materials.

4.5 Improve Regulations

Action 4.5.a Reduce legal and administrative barriers to adopting alternative materials and practices.

GOAL 5. Remove, Clean Up, and Mitigate

Reduce marine debris by removing and cleaning up litter and debris items as well as mitigating the impacts and the damage marine debris causes.

Audiences: Many litter cleanup programs can engage a broad audience, but there is also a role for targeted cleanups that require targeted audiences. For example, locating and retrieving crab pots requires special knowledge, skills, and equipment.

GOAL 5 Removal, Clean Up, and Mitigation Strategies

5.1 Change Behaviors

Action 5.1.a Engage the public in active, personal participation including cleanup events to remove marine debris from in-land waterways, shorelines, and coastal waters.

Example: strive for diversity through engaging families, schools, businesses, boating and fishing communities in removing and cleaning up lost and derelict fishing nets and vessels, litter, lumber, tires and other harmful debris items.

5.2 Collaboration

Action 5.2.a Support multi-jurisdictional and public-private partnerships in cleanup and removal efforts to create long-term ecological improvements for coastal and in-land waterways, habitat, and wildlife.

Example: Coordinate with disaster debris management plans.

Action 5.2.b Support clearinghouse for cleanup and removal events and programs to include events, approaches, organizing groups, results of and data generated during cleanup events.

Action 5.2.c Identify partners for on-water clean up activities.

Example: Seek partners with specialized skills, knowledge, and resources (e.g., fishing industry, sailing clubs, marinas, divers).

5.3 Increase Knowledge

Action 5.3.a Identify and investigate barriers to cleanup and removal efforts.

Examples: Clarify the legal implications of removing derelict and abandoned vessels and other marine debris including those related to storm-related impacts.

Action 5.3.b Support research on effectiveness of various removal methods.

Examples: Volunteer stream/shore cleanups; roadside cleanups; crab pot/fishing gear cleanups; trash scooping barges; street sweeping

Action 5.3.c Facilitate creation of data collection and sharing system.

Examples: Reporting system for lost gear; simplified and standardized data form for all cleanups; self reporting to a central on-line database; product tracking

Action 5.3.d Increase awareness of monitoring results, volunteer cleanup data, and marine debris removal programs and outcomes.

5.4 Fund

Action 5.4.a Identify existing and potential revenue streams to sustain statewide marine debris and litter prevention.

Action 5.4.b Seek dedicated funding from a diverse array of sources.

Examples: Fees on single-use bag, throw as you go programs.

Action 5.4.c Provide incentives (or subsidies) to encourage the commercial fishing industry and others to remove derelict crab pots, clam netting, and other lost or derelict fishing gear and repurpose or recycle the materials when possible.

Action 5.4.d Support funding for locally driven, community-based marine debris removal projects that benefit coastal habitat, waterways, and wildlife.

Examples: Monofilament recycling; volunteer cleanup events; Adopt-a-Stream program; collection of derelict clam netting.

5.5 Improve Regulations

Action 5.5.a Remove administrative barriers to clean up events and removal of lost or derelict gear and derelict vessels.

6. Implementation and near-term goals.

Near-Term (2014-2016) Action Items

A major objective of this Plan was to outline an approach for the near-term (2015-2016). The focus of this section is to provide details on the four near-term priorities identified by the leadership team based on input from stakeholders. These are:

1. Establish an on-going Virginia marine debris advisory committee.

2. Develop and implement a social marketing campaign targeting behaviors that result in a common, persistent, and harmful marine debris item: balloons.

3. Analyze existing legislation and policies and provide recommendations to support waste minimization of the most common items found as marine debris (e.g., single-use plastic bags, food and beverage packaging, balloons, cigarette butts).

4. Identify existing and potential revenue streams to sustain statewide marine debris and litter prevention.

The Virginia CZM Program, based on priorities set in the 2011-2015 Coastal Needs Assessment, allocated $20,000 for the next two fiscal years (October 2014 through September 2015 and October 2015 through September 2016) to begin implementation of this plan. In addition, the Virginia CZM Program has received a NOAA Marine Debris Education and Outreach grant program, which will partly fund the development of a social marketing campaign, aimed at changing the behavior of people who plan mass releases of balloons.

The following sections provide more detail on the rationale, plans for near term implementation, and measureable outcomes.

1. Establish an on-going Virginia Marine Debris Advisory Committee

A near-term priority is to organize an ongoing advisory group, tentatively called the *Virginia Marine Debris Advisory Committee,* of partners since successful implementation of the VMDRP depends upon a collaborative and coordinated approach.

The Virginia Marine Debris Advisory Committee should be made up of potential implementers (many of whom served on the VMDRP Leadership Team) as well as other stakeholders to be identified. In addition, elected officials with the ability to assist with improving regulations should be invited to serve.

Measurable Outcome

The desired outcome will be the development of this committee. The process of creating this committee will include determining where the Virginia Marine Debris Advisory Committee will be housed, and at what level (gubernatorial, agency, or program level). The authority of the committee will also have to be determined.

2. Develop and implement a social marketing campaign targeting a common, persistent, and harmful marine debris item: balloons.

Why start with a social marketing campaign to reduce balloon litter?

Social marketing is a process that influences changes in behavior. Social marketing applies marketing principles and techniques to influence target audience behaviors that benefit society as well as the target audience. Community-based social marketing borrows from social marketing an emphasis on understanding what impedes and motivates a target audience to act.

Community-based social marketing is grounded on direct contact with individuals and communities and the removal of internal and external barriers. Social science research suggests that such an approach is most likely to bring about behavior change.

A major outcome of this project will be to **build our expertise in behavior change campaigns and our capacity for future significant actions to prevent marine debris**. During the research phase of this project, information about attitudes, beliefs and behaviors will be collected that will inform future social marketing educational efforts on other common behaviors that lead to marine debris. In addition, the project will be designed to be scalable to the regional and national levels.

Incidental and mass balloon releases are often used as a way to celebrate special occasions such as weddings, birthdays, festivals, fundraisers, graduations, store openings and sporting events; and, to commemorate the loss of loved ones at funerals and memorials.

Balloons are unique among all the man-made litter and debris found in the ocean and on the land. Helium-filled balloons (and their attachments including plastic valves, disks and ribbons) are the one form of litter that people actually purchase with the intent to release them “on purpose” into the environment.

As they rise, the balloons may or may not burst, but eventually all balloons and their attachments return to earth as litter, landing in the ocean, inland water bodies, or on land. Many of these airborne balloons or their fragments will end up in the oceans where they can be mistaken for food by marine animals and ingested. The string, ribbon or other material can wrap around fins, flippers, and limbs—leading to starvation,

infection, amputation, or drowning. Scientists who work with stranded whales, dolphins, seals, and sea turtles have found balloons, parts of balloons, and balloon string in the stomachs of many of these dead animals. A 2006-2011 Queensland study of stranded sea turtles found that of the 41 pieces of rubber eaten by turtles studied, 32 pieces (78%) were balloon fragments.

There is documentation of several species of birds and endangered sea turtles impacted by balloon litter in Virginia through ingestion and entanglement. Moreover, recent beach cleanup data have shown that nesting beaches used by threatened loggerhead sea turtles and endangered shorebird species are severely impacted by balloons. During recent surveys of remote islands on Virginia's Eastern Shore, up to 125 balloons were documented per mile of beach (Trapani & O'Hara, pers. comm.).

Entanglement in balloon ribbons can lead to death for wildlife. A cormorant (species unknown) entangled in the ribbons of two balloons was found dead on a beach in Virginia in April 2014. (Photo: B. Holliday)

Measurable Outcomes

The desired outcomes of this action will be:

1. A significant and measurable number of commitments from our targeted audience(s)—individuals and organizations—to switch from the mass release of balloons to a more environmentally sensitive activity ultimately leading to a decrease in balloon releases.
2. A measurable number of balloon releases that were cancelled and the number of balloons that were subsequently NOT released.
3. A significant and measurable number of commitments from our targeted audience(s) to prevent the accidental release of balloons.
4. A measurable reduction in balloon litter in Virginia.

3. Analyze existing legislation and policies and provide recommendations to support waste minimization of the most common items found as marine debris.

Because Virginia is a Dillon Rule state, the powers of local governments are limited to land use planning and any other authorities specifically enabled by the state legislature. Therefore, communities in Virginia may only pass local regulations regarding marine debris items of local concern (such as single use shopping bags) if specifically enabled by the Virginia legislature. In 2013, a bill was introduced into the Virginia General Assembly, requesting that communities in Northern Virginia be allowed to place a fee on single use shopping bags; however, the bill did not get out of committee.

Measurable Outcomes

The desired outcomes will be:

1. A review of possible legislation and regulatory options.
2. Coordination with counties and cities in Virginia, as well as citizen groups, that are interested in obtaining authority to enact local fees on litter items of local concern (i.e., single-use bags) to investigate the potential of a joint coordinated request to the General Assembly.

4. Identify existing and potential revenue streams to sustain statewide marine debris and litter prevention

Most of the actions in the VMDRP require additional funding. Some, such as intercepting litter at storm drains, will require a substantial amount of funding. Therefore, researching sources of funding to support this plan is a high priority.

The proposed Virginia Marine Debris Advisory Committee will start by listing and investigating the various market-based instruments other states have in place to raise revenue for litter-prevention and also encourage changes in behavior. Market-based instruments (e.g., taxes, charges, fees, fines, penalties, subsidies and incentives) can change the cost or price of a product (e.g., plastic bags or beverage bottle), service (e.g., waste collection and community recycling), input (e.g., materials), or output (e.g., pollution). For example, ten states have container deposit bills (also referred to as “bottle bills” or redemption fees) in place to encourage recycling. (Several states have, or are considering, a fee on the distribution of single-use shopping bags.)

Some states have considered these market-based instruments equivalent to a fee-for-service rendered as opposed to a tax. Depending on the state, portions of the revenue from these fees are earmarked for litter prevention, improving recycling practices, or for helping to fund public parks and historic sites. Due to growing concerns over the environmental impact and cost of cleaning up cigarette butts, one U.S. city imposes a “cigarette litter abatement fee” of $.20 per pack, the proceeds of which helps defer the costs of cleaning streets, sidewalks, and public property.

Local governments also charge fees for waste collection, recycling, and tip fees at landfills. Of course, when looking at current and potential revenue streams, steps must be taken to avoid unintended consequences. For example, raising some fees might provide perverse incentives for illegal dumping.

While Virginia does not have a container deposit program – and the VMDRP leadership team was in consensus that Virginia would not be likely to pass such legislation – Virginia does have a Litter Tax that is paid by wholesale distributors and retail merchants. This fee, currently $10 to $15 annually, has not been increased since the Litter Tax was enacted in 1976.

Despite the difficulties in passing new or raising current fees and taxes, many of the participants in the development of this plan acknowledged that fee-for-use possibilities must be explored in order to generate funding needed to substantially reduce the amount of litter and marine debris from Virginia's inland- and water-based sources, and for cleanup and removal activities.

Other funding sources for marine debris activities are grants from government agencies and private foundations, or industries that are committed to this issue. Having a statewide marine debris reduction plan in place will be beneficial as Virginia-based researchers seek funding from competitive grant programs.

7. Glossary of Acronyms

CPT	Coastal Policy Team
CVW	Clean Virginia Waterways
CZM	Coastal Zone Management
CZMA	Coastal Zone Management Act
DCR	Department of Conservation and Recreation
DEQ	Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
ICC	International Coastal Cleanup
KVB	Keep Virginia Beautiful
MARCO	Mid-Atlantic Regional Council on the Ocean
MARPOL	International Convention for the Prevention of Pollution from Ships
MS4	Municipal Separate Storm Sewer System
NGO	Non-governmental Organization
NOAA	National Oceanic and Atmospheric Administration
NMDMP	National Marine Debris Monitoring Program
NPDES	National Pollution Detection and Elimination System
PBT	Persistent, Bioaccumulative, and Toxic
US EPA	United States Environmental Protection Agency
VA CZM	Virginia Coastal Zone Management Program
VDGIF	Virginia Department of Game and Inland Fisheries
VIMS	Virginia Institute of Marine Science
VMDRP	Virginia Marine Debris Reduction Plan
VMRC	Virginia Marine Resources Commission
VRA	Virginia Recycling Association
VSMP	Virginia Stormwater Management Program

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9. List of Appendices

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